February 22-23 Low Elevation Snow Event

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Aerial shot of snowfall in Summerlin. Photo courtesy of Robert Starling.

Introduction

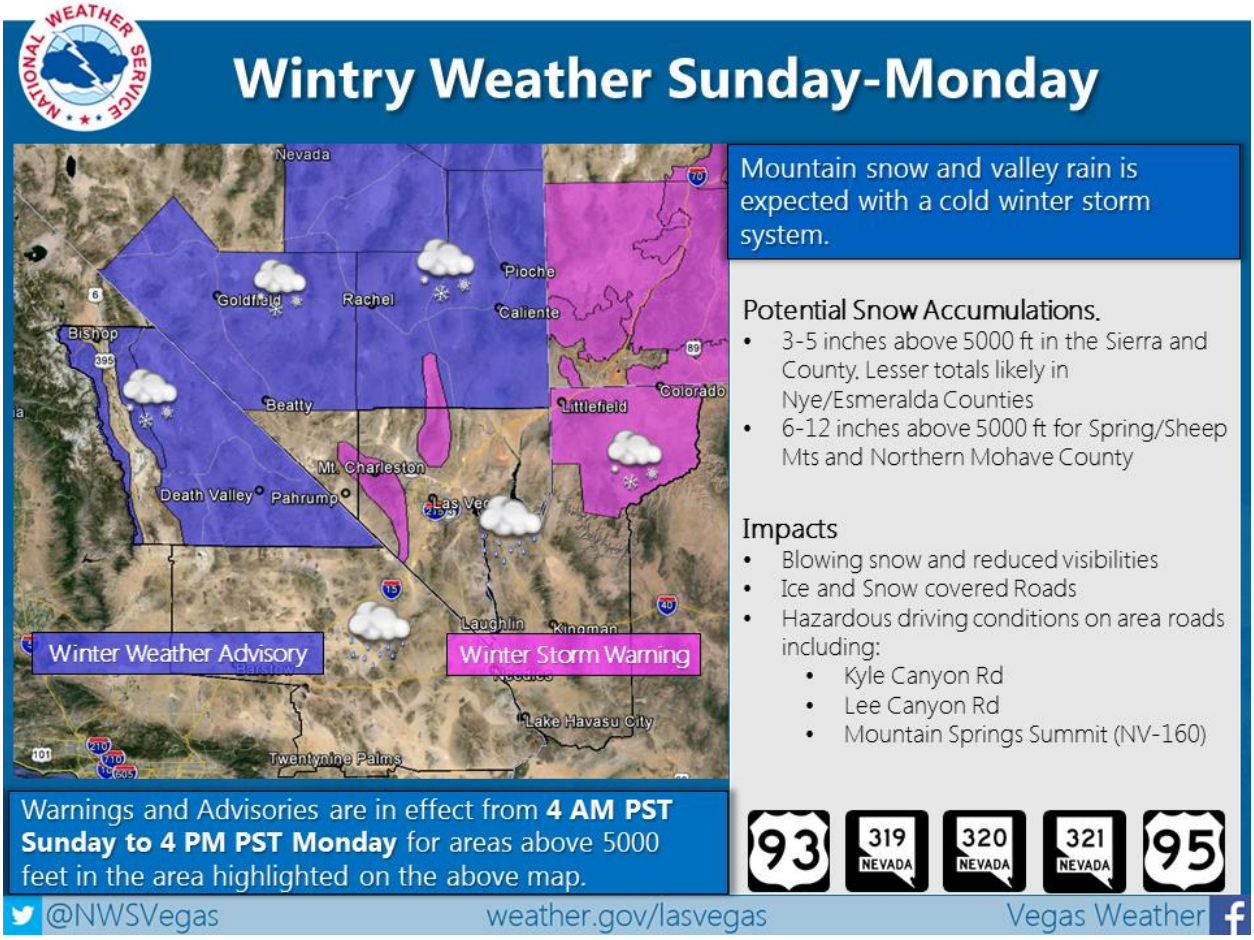
A strong winter storm system impacted much of the Southwestern U.S beginning Sunday February 22nd and continuing into Monday, February 23rd. This storm originated north of the Canadian border and brought widespread rainfall and low elevation snow to much of the region. Heavy snow fell across most elevations above 5000 feet but cold air on the backside of the storm brought moderate accumulations of snow to elevations as low as 3000 feet. A dusting of light snowfall was even observed as low as 2500 feet early Monday morning across western portions of the Las Vegas Valley. This was the greatest accumulation of snow observed in the metro area since January 3rd, 2011 when 3 inches of snow fell in Summerlin.

Heavy snowfall also impacted the Sierra Nevada and the Spring Mountains with over a foot of snow falling in parts of those areas, with several inches of accumulating snow also observed across Northwest Arizona. Below the snow level, rainfall of one-quarter to three quarters of an inch was very common from the western Mojave Desert to the Northwest Plateau of Northern Arizona.

The Event

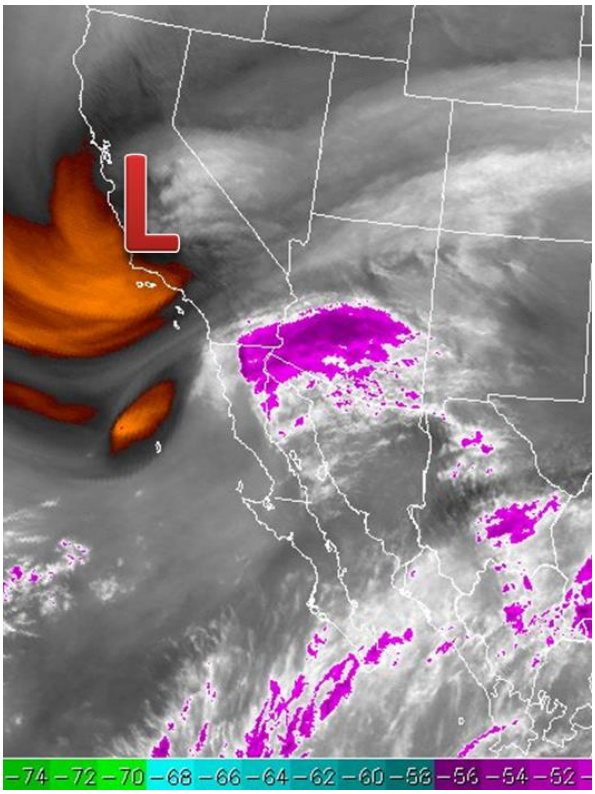
The storm system initially developed on the backside of a trough over the northern Rockies and then gradually developed southward into a strong low pressure system over central California. The image below shows its trajectory, taking a path directly through the Mojave Desert and eastward into northern Arizona.

In the days prior to the storm system reaching the area, model forecast consistently hinted at the likelihood of widespread rain and mountain snowfall across the area. Initially it was looking like the storm would hit the southern Great Basin region the hardest but as the event drew near, the storm track shifted south slightly, favoring the western Mojave Desert and Northern Arizona for the heaviest precipitation. By Saturday afternoon, Winter Storm Warnings had been issued for the Spring and Sheep Mountains above 5,000 feet, as well as the northwest plateau of Northwest Arizona. Winter Weather Advisories were also in place for much of the southern Great Basin and Inyo County where lesser amounts of snowfall were expected but still enough to cause impacts.

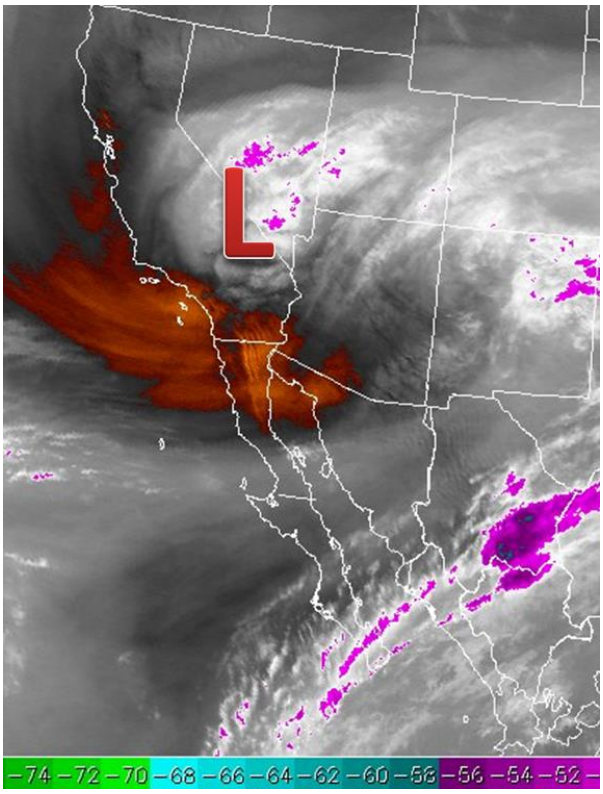


As the event drew near, precipitation first began to break out Sunday morning across the southern Great Basin and higher terrain of Northwest Arizona as the storm intensified over central California. By mid-afternoon, additional precipitation broke out across eastern California with spotty rainfall across parts of the Mojave Desert. Snow levels had been observed running slightly lower than forecast across Lincoln County where snow had been observed down to around 4,500 feet by Sunday afternoon, but with little accumulation by that point. Additionally, higher resolution forecast models began to hint at the possibility of snow levels falling abruptly

overnight down to near 3,500 feet as front intensified across the region. This meant the higher western edges of the Las Vegas Valley would be very near the snow level and many mountain passes in the area could be impacted by accumulating snow.

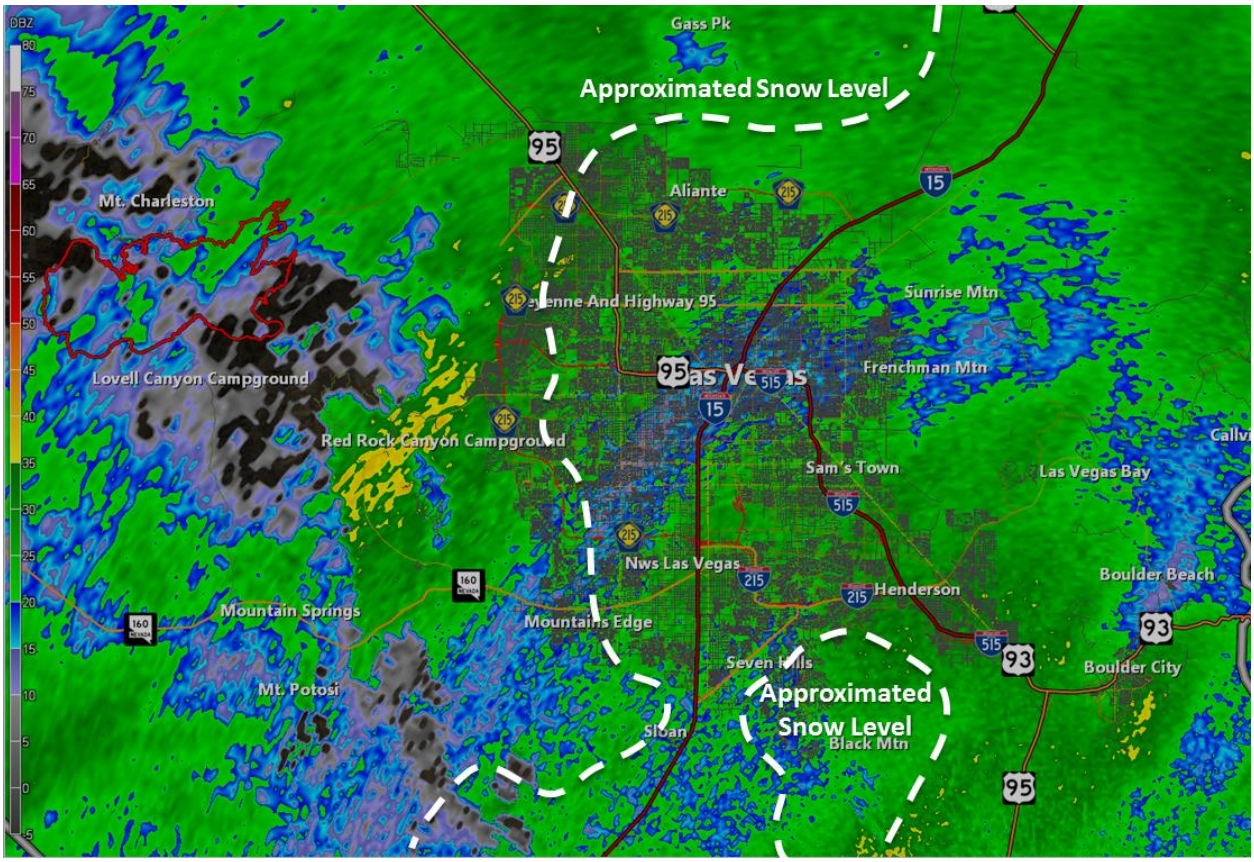


Water Vapor Image – 4 pm Sunday



Water Vapor Image – 1 am Monday Morning

As the water vapor images above show, the low pressure system moved east across California and into the Mojave Desert and southern Great Basin overnight Sunday into Monday morning. This resulted in widespread precipitation breaking out across the region, and strong upward motion associated with low developing across eastern San Bernardino County and southern Nevada. Meanwhile, at the surface, northeasterly winds on the north side of the surface low pressure system drew in cool and dry air from the north allowing surface temperatures to quickly drop in conjunction with the heaviest precipitation in the early morning hours on Monday morning. In addition, northeasterly winds favored upslope enhanced precipitation across the western sides of the Las Vegas Valley, enhancing precipitation rates across this area and bringing the snow level down even lower than expected. Temperatures across the western edges of the Las Vegas hovered in the 35 to 32 range allowing for wet snow to fall as low as 2,500 feet during the heaviest bursts of precipitation. Even McCarran Airport dropped to 38 as the band moved through. The radar image below shows the period of heaviest precipitation as it impacted Southern Nevada and a general approximation of the snow level.



In summary, the cooling of temperatures resulting from a heavy band of precipitation, along with the added influence of cool northeasterly upslope flow in the western sides of the Valley allowed the snow level to crash dramatically leading to snow being observed in Summerlin and Mountain's Edge. By day break Monday, the low pressure system began to shift eastward into Arizona allowing areas west to dry out. Snow below 3,500 feet rapidly melted early Monday morning but higher elevations remained coated in snowfall through the following morning. Listed below are the storm total snowfall accumulations reported for this weather event.

<u>Storm Total Snow Accumulations:</u>

Aspendell, CA	12”	8,500 ft
Mount Charleston, NV	11.5”	7,450 ft
Mountain Springs, NV	10”	5,400 ft
Bonnie Springs, NV	6.5”	3,700 ft
Spring Mountain Ranch, NV	6”	3,700 ft
Red Rock Canyon, NV	6”	3,870 ft

Pipe Springs Nt. Monument, AZ	6”	4,920 ft
Mountain Pass, CA	5”	4,730 ft
Colorado City, AZ	3”	4,977 ft
Spring Mountain Ranch, NV	2”	3,300 ft
Caliente, NV	2”	4,200 ft
Searchlight, NV	2”	3,540 ft
Summerlin, NV	1.5-2.0”	3,200 ft
Meadview, AZ	1”	3,500 ft
Panaca, NV	1”	4,729 ft
Goodsprings, NV	0.5”	3,700 ft
Mountains Edge	0.5”	2,800 ft

Impacts

Roadways throughout the Las Vegas Valley and surrounding areas were affected by Sunday evening, as rain and snow began to spread across the area. Roads at the lower elevations were wet and slippery while major mountain passes were impacted by heavy snowfall during the overnight hours. Chain restrictions were put in place for Highway 160 between Las Vegas and Pahrump as approximately 10-12 inches of snow fall at Mountain Springs in the timespan of 8 hours. Travel was also dramatically slowed on I-15 at Mountain Pass, as 5 inches of snow was observed by daybreak. Several inches of snow managed to blanket Highway 159, mainly west of the Red Rock Canyon scenic route, where 5-6 inches of snow was observed at Oak Creek Canyon and Spring Mountain Ranch State Park. This stretch of road was quickly plowed by mid to late morning. However, the scenic route at Red Rock Canyon was closed for much of the day due to accumulated snow. The weather also greatly limited Search and Rescue operations conducted by law enforcement and park officials for several hikers which were stranded in Ice Box Canyon.

Rain managed to change over to snow at elevations as low as 2500 feet during the overnight hours with a heavy band of precipitation over the western portion of the valley. While snow didn’t stick in all areas, Mountain’s Edge, Summerlin, and Anthem managed to have snow accumulate, mainly on elevated and grassy surfaces. Snow was also able to stick to some of the less traveled side streets of Summerlin, as snowfall rates exceeded the rate of snowfall melt on warmer paved surfaces, quickly accumulating 1.5 inches of snow. Otherwise, roads were simply wet by sunrise, allowing for a manageable, but slower commute. All things considered, there were not as many reports of travel accidents or slow downs during this event as there could have been if it had happened closer to the morning rush hour.

In terms of air travel, people traveling through McCarran International Airport felt their fair share of travel woes in the form of delayed flights. Lingering showers and persistent low cloud ceilings caused the airport to stop arrivals and departures for an hour by late morning, before resuming operations at a reduced rate. This reduced period of arrivals and departures lasted through the afternoon rush and into the early evening hours. The average flight delay time during this period was roughly 1 hour 15 minutes.

This event produced the most snow accumulation this late in the season since an inch was observed in Summerlin on February 26, 1996. Aside from the statistics, this was easily one of the more memorable events for locals as many of them traveled to Red Rock National Conservation Area to partake in a snow day.

Pictures

Special thanks to all our followers on social media as well as regional weather spotters who submitted the following pictures to us and provided us with frequent weather updates.

Heavy snow falling in downtown Summerlin early in the morning of the 23rd, Photo courtesy of John Mehaffey.

Snow falling in the Paseos neighborhood in Northwest Las Vegas. Photo courtesy of Stephanie Valdez.

Snow in Summerlin. Photo courtesy of Sharon Blackman.

Snow falling in Anthem, photo courtesy of Shannon Grama.

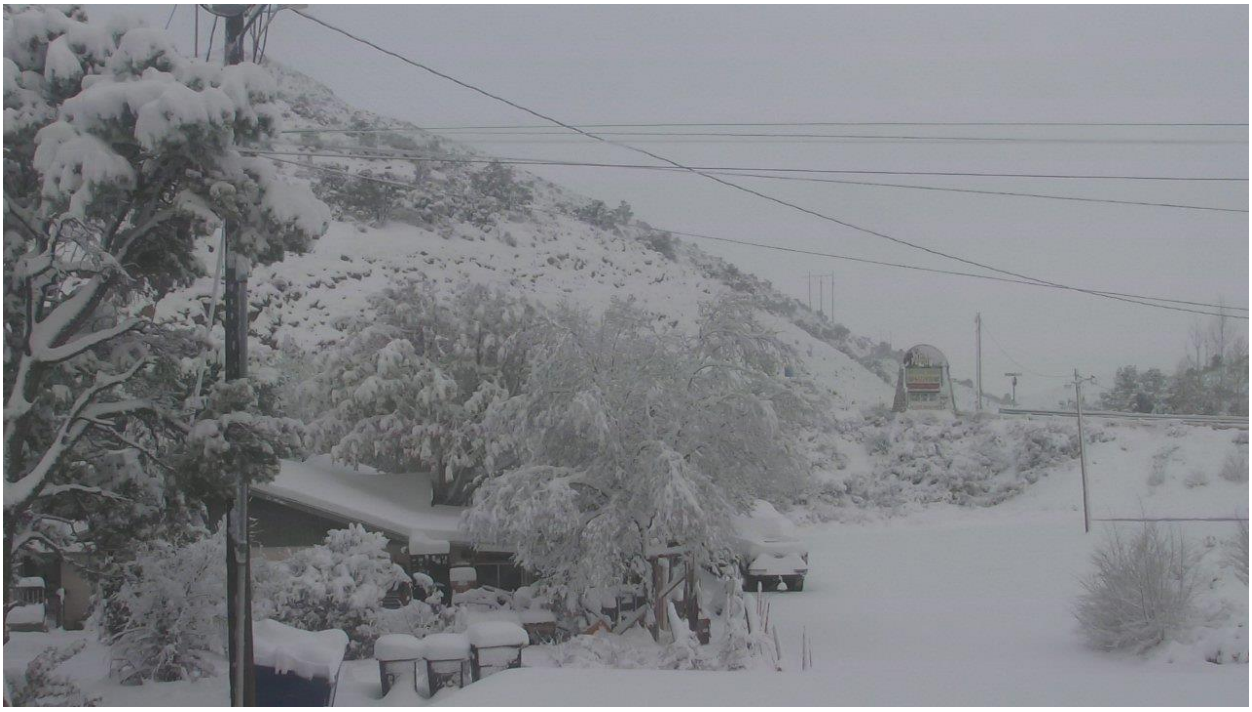
Snow in Anthem Highlands, photo courtesy of Wayne Meyer.

Snow in the hills near Palo Verde High School. Photo courtesy of Marian I. Tapia-Menchaca.

Summerlin Centre on the morning of February 23rd. Photo Courtesy of Chris Stachelski.

Trees coated in wet snow in Summerlin. Photo courtesy of Chris Stachelski.

Snow at Mountain Pass. Photo courtesy of Joe Nino.



Snow as seen from the Mountain Springs Saloon on the morning of February 23rd.

Webcam shot of Red Rock Canyon on the morning of February 23rd.

Webcam shot of Mount Charleston Lodge on the morning of February 23rd

Webcam shot of Red Rock Country club on the morning of February 23rd.

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Sheep range as viewed from North Las Vegas, courtesy of Michelle Rudiman.

Snow dusting the peaks near Callville Bay at Lake Mead. Photo courtesy of Ward Wilcoxon/

Summerlin Mountains following the storm on February 24th. Photo Courtesy of Ray Scucci.